Connectivity is Critical:

What We Learned From Three Rural Counties

By Matt Klesta and Bonnie Blankenship

FEDERAL RESERVE BANK *of* CLEVELAND

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No county is without its challenges, but the Cleveland Fed's Community Development Department has found that those in rural counties in particular face a unique set of difficulties. After studying three of our region's most economically challenged counties, we learned that connectivity—both virtual (broadband access) and physical (roads and public transportation)—is critical in rural counties.

For some time, research and news reports have highlighted a host of issues negatively impacting rural America. Total employment in rural counties has still not recovered to pre-Great Recession levels, a milestone that urban counties achieved in 2013.[1] Struggling, too, is total population. Rural counties saw an increase in 2017, but that was the first time since 2011, and many of the counties have been hit so hard by the opioid epidemic that overdose deaths have affected the natural change—that is, the number of births and deaths—there.[2,3] This is particularly true in Fourth District states; in 2016, the opioid-related overdose rates in Kentucky, Ohio, Pennsylvania, and West Virginia exceeded the national average.[4] Adding to the population dilemma is the struggle to retain college-educated young people: A recent research brief from the Board of Governors of the Federal Reserve System examined "rural brain drain" and found that "individuals with student loan debt are less likely to remain in rural areas."[5]

With these issues in mind, we wanted to take a closer look at rural counties in our District to better understand the unique economic conditions and challenges they face and to draw lessons from their experiences from which other rural counties can learn.

We selected three counties, one each from Kentucky, Ohio, and Pennsylvania, based on the following criteria:[6]

1. The county is rural, defined as not being part of a metropolitan or micropolitan statistical area. This combination denotes that the county lacks a population of more than 10,000 people.
2. The county has demonstrated a sustained period of need. We examined the counties that, from 1960 to 2010, had the highest average poverty rate among rural counties in our region.

1 United States Department of Agriculture. 2018. *Rural America at a Glance.* https://www.ers.usda.gov/webdocs/publications/90556/eib-200.pdf?v=5899.

2 Marema, Tim. 2018. "Rural America Gains Population for First Time in Six Years." *Daily Yonder.* March 22. https://www.dailyyonder.com/rural-america-gains-population-first-time-six-years/2018/03/22/24677/

3 United States Department of Agriculture. 2018. *Rural America at a Glance.* https://www.ers.usda.gov/webdocs/publications/90556/eib-200.pdf

4 Fee, Kyle. 2018. *The Opioid Epidemic and Its Effects: A Perspective on What We Know from the Federal Reserve Bank of Cleveland.* https://www.clevelandfed.org/newsroom-and-events/publications/community-development-briefs/db-20180531-the-opioid-epidemic.aspx

5 Tabit, PJ, and Josh Winters. 2019. *"Rural Brain Drain": Examining Millennial Migration Patterns and Student Loan Debt.* Board of Governors of the Federal Reserve System. https://www.federalreserve.gov/publications/2019-january-consumer-community-context.htm

6 We did not select a county from West Virginia because the six counties in the state that are part of our region are performing relatively well. Of the six, only two are considered rural, and their average poverty rates are near the state average.

These criteria led us to select the following three counties to comprise this series of case studies:

- Owsley County, Kentucky
- Adams County, Ohio
- Greene County, Pennsylvania

We traveled to each of these counties and interviewed key stakeholders to better understand the major challenges facing their communities, determine what is working and not working in terms of tackling challenges, and learn how well organizations are working together, both within the county and within the greater region. The stakeholders we interviewed are individuals immersed in their county's economic and social issues. They range from economic development officials to a director of a career and technical school to the head of a local affordable-housing organization. In each case study, we begin with an overview to paint a picture of the county, then follow with key findings regarding issues that surfaced across the interviews.

WHERE WE WENT

Owsley County, Kentucky

Owsley County has struggled for a long time. At the end of the nineteenth century, the county was one of Kentucky's many "pauper counties," counties in which tax revenues did not cover their expenses.[7] Unlike other counties in eastern Kentucky, Owsley lacked large coal reserves and "never received significant transportation improvements, such as a railroad line."[8] Owsley lies in the heart of eastern Kentucky's stretch of the Appalachian Mountains, surrounded by beautiful backcountry and adjacent to the Daniel Boone National Forest that includes the Red River Gorge Geological Area, which attracts thousands of visitors each year. The county is in such a remote region that its county seat of Booneville has a population of only 148 people.[9] The nearest city, London (2017 population 8,006), is an hour away. The closest city with a substantial population is Lexington (2017 population 321,959), 90 minutes away. According to Jeff Whitehead of the Eastern Kentucky Concentrated Employment Program, Inc., "Owsley—one of the counties in the heart of the mountains—is isolated and lacks avenues for opportunity. The county is not a coal producer but more of an agricultural community. [It's] close enough to London but just far away enough to be forgotten."

In 2017, the average annual pay for a job in the county was $27,847 or 62 percent of the state average; its unemployment rate in August 2018 was 7.2 percent, or 1.8 times the national average;[10] and, from 1960 through 2010, the county had the fifth highest poverty rate of the 3,160 US counties with available data.[11] But things are looking up in at least one area. The county now has internet speeds eight times faster than the national average, and this has helped create more than 200 jobs and instill hope in the community.[12]

7 Burch, John R. 2008. *Owsley County, Kentucky, and the Perpetuation of Poverty*. Jefferson, NC: McFarland & Co.

8 Ibid.

9 US Census Bureau. 2013–2017 American Community Survey 5-Year Estimates.

10 Ibid.

11 Author's analysis of US Census Bureau data.

12 Keith Gabbard. Peoples Rural Telephone Cooperative (PRTC). Interviewed August 17, 2017.

WHOM WE SPOKE WITH

- **Keith Gabbard**, *CEO, Peoples Rural Telephone Cooperative*
- **Angela Woods**, *President and CEO, Farmers State Bank*
- **Cassie Hudson**, *Executive Director, Partnership Housing*
- **Molly Turner**, *Executive Director, Owsley County Action Team*
- **Jeff Whitehead**, *Director, Eastern Kentucky Concentrated Employment Program, Inc.*
- **Carla Gabbard**, *Booneville HUB Manager, Teleworks USA*
- **Les Roll**, *Project Specialist, Mountain Association for Community Economic Development*
- **Robert Donnan**, *Consultant, Robert Donnan Consulting*

WHAT WE LEARNED

The local housing market is struggling. It is difficult to entice builders to construct new homes in a county that lost 8 percent of its population from 2001 to 2017 and where both the median household income ($18,869) and median home value ($66,200) are 50 percent lower than the state average. County residents struggle to pay for housing. Many are considered housing burdened—that is, paying at least 30 percent of their income toward housing. Results of the 2012–2016 American Community Survey show 50 percent of the county's renters (near the state average), 45 percent of households with a mortgage (1.8 times the state average), and 19 percent of households without a mortgage (1.7 times the state average) were considered housing burdened. There is a clear need for affordable housing in the county. Partnership Housing is the only housing company that serves the housing needs of the county. Established in 2005, the company has since constructed 34 new homes for low- to moderate-income residents and completed 185 rehabilitation projects throughout the county.

Many county residents work outside of Owsley, and the mountainous topography makes the transportation of goods difficult. Most people in Owsley County commute to work by driving alone (82 percent), and many work outside of the county. In 2015, 67 percent of Owsley's residents worked outside of the county.[13] As in many small, rural communities, there are no public transportation options. The primary method of transportation is owning a vehicle or, to a lesser extent, carpooling. These long commutes can be costly when the price of gas and wear and tear to vehicles is factored in. But getting people to work is not the only challenge with transportation; getting goods to where they need to be is difficult, too. Cassie Hudson from Partnership Housing explains, "no industry wants to come to Owsley. It costs more to transport goods because of the roads. This may change once Route 30, the new road, is finished. [It] should be started in 2019."

The number of jobs is declining. "In the past, the community was an agricultural community, and education was not emphasized," observed Molly Turner of the Owsley County Action Team. "Families farmed their land, and that was their source of income. Tobacco was the main crop, and [with the decline in smoking] that has gone away." From 2001 to 2017, Owsley County lost 9 percent of its jobs. During that same period, the rest of the state saw an 8 percent growth in total jobs. The county is dominated by employment in the government sector and the education and health services sector; the two sectors make up 74 percent of the county's jobs. Figure 1 illustrates the dominance of government and education and health services employment, using location quotients.[14]

With local leadership having been in place for decades, instituting a succession plan to ensure future leadership in the wake of a declining population is a concern. The Owsley County Action Team has been around for more than 25 years and is the only remaining organization of several similar organizations, designed to improve the quality of life, that were created across eastern Kentucky. In terms of local

13 US Census Bureau. 2019. LEHD Origin-Destination Employment Statistics (2002–2015). Washington, DC: US Census Bureau, Longitudinal-Employer Household Dynamics Program, LODES 7.3. May 22. https://onthemap.ces.census.gov.

14 Location quotients compare the share of an industry in one region against that same industry's share in another region, usually the United States as a whole. A number greater than 1.0 indicates industry specialization.

government, until recently, Charles E. Long had been Booneville's mayor since 1959. Over time, systems of doing things are worked out and relationships are built, but in a county in which population is declining and young people are leaving, it is often unclear who will fill future leadership roles. During the past 50 years, the county's population peaked in 1978 and has since declined 23 percent. Table 1 illustrates that the population loss is attributed to fewer births and more people moving out of the county.

Broadband infrastructure has recently contributed to the creation of a significant number of jobs. In 2015, with the help of federal loans and grants, the local telecom company People's Rural Telephone Cooperative (PRTC) connected every home and business in Owsley County and neighboring Jackson County to a high-speed fiber-optic network. The connection provided two economically challenged counties with internet speeds eight times faster than the national average. "It was the first time I ever heard Owsley County used in a positive way," said Cassie Hudson. Teleworks USA, an organization started by Eastern Kentucky Concentrated Employment Program, Inc. that connects job seekers with work-from-home opportunities, aims to capitalize on the broadband connection by creating a pipeline of employment opportunities. With the help of Teleworks USA, county residents are able to work remotely for companies across the country in fields such as customer service, platform support, and computer programming. Since installation of high-speed broadband lines, more than 200 jobs have been created in Owsley County alone, a fact that indicates—at least to Jeff Whitehead—that "Owsley County ha[s] changed [its] narrative."

Figure 1: Using Location Quotients to Understand Owsley County's Employment Mix (2017)

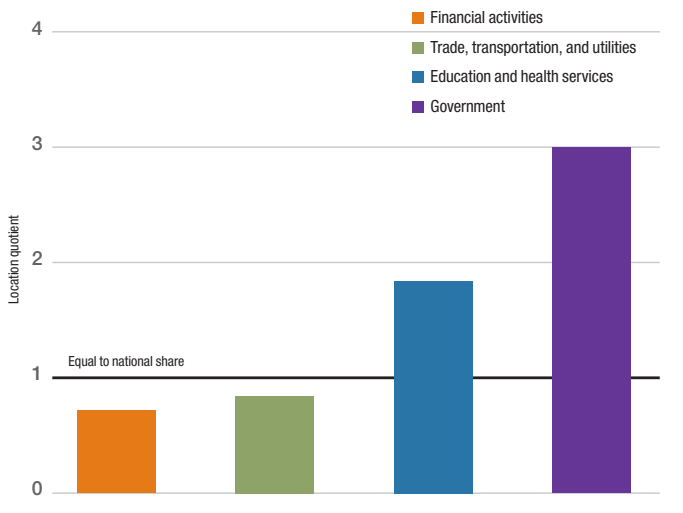


Table 1: Why Owsley County's Population is Changing

	2000–2009	2010–2017
Births	**620**	**375**
Deaths	**744**	**542**
Natural increase *(births minus deaths)*	**–124**	**–167**
Migration *(domestic)*	**–84**	**–160**

WHERE WE WENT

Adams County, Ohio

"We're resilient, we're collaborative, we have dealt with some pretty difficult times and some uncertain situations and we've always managed to bounce back," says Brian Rau, superintendent for the Manchester Local School District. "We understand the only constant variable we have to get us through challenging situations is the collaborative efforts of the residents and agencies within Adams County." Located some 60 miles east of Cincinnati is Adams County. It's picturesque, bounded by the Ohio River to the south and blanketed in shades of green: rolling green hills, green farmland, green forests. Less than 5 percent of its land is considered developed; forests, pastures, and farmland make up the vast majority (89 percent).[15]

Even so, the county has changed quite a bit over the years. Families no longer make weekly trips to shop along its towns' main streets, farming is less prevalent, and opioid abuse is increasingly common among its residents. Uncertainty permeates the local economy—in May 2018, two Adams County coal-fired power plants shut down for good, resulting in the loss of more than 300 jobs and around $8.5 million in tax revenue.[16]

Yet, at the same, some things never change, in particular the strong sense of community and volunteerism. During our interview, Leeann Puckett from the Adams County Health & Wellness Coalition mentioned that "when something happens in the community, the community is there. If someone gets sick in the community and we do a fundraiser, we raise a lot of money. . . people take pride in the people."

Her colleague Debbie Ryan followed up: "It's that Appalachian culture of taking care of your own."

WHOM WE SPOKE WITH

- **Randy Chandler**, *Director, Coalition for a Drug Free Adams County and Engineer, General Electric*
- **Holly Johnson**, *Director, Adams County Economic & Community Development*
- **Liz Lafferty**, *Superintendent, Adams County Board of Developmental Disabilities*
- **Leeann Puckett**, *Adams County Health & Wellness Coalition and General Electric*
- **Brian Rau**, *Superintendent, Manchester Local Schools*
- **Debbie Ryan**, *Coordinator, Adams County Health & Wellness Coalition*

WHAT WE LEARNED

Farming employment has declined. In the 1970s and 1980s, farming accounted for nearly 25 percent of the county's total employment, but by the 2000s, that share had declined to 12 percent. Figure 2 shows that even after large declines since the 1970s, farming employment in Adams County is still 8 times greater than the national average, while manufacturing is 1.5 times greater.[17]

Two coal-fired power plants closed, impacting jobs and tax revenue. For decades, the J.M. Stuart and Killen Stations generated power, provided employment to hundreds, and supplied millions of dollars to the region in taxes and income. The plants' smokestacks tower hundreds of feet above Manchester, Ohio, a village pressed against the Ohio River. But on May 24, 2018, the J.M. Stuart Station ceased to operate; a week later, the Killen Station suffered the same fate. In a county with declining employment—6 percent since 2001—it will be difficult for these former power plant employees to find jobs.

The population has remained relatively unchanged. Since 2001, the county's population has increased 1 percent. Table 2 shows that the cause of this stagnant population is a combination of residents moving away and a decline in the number of births.

15 Ohio County Profile for Adams County, Ohio. https://development.ohio.gov/files/research/C1002.pdf

16 WCPO Cincinnati Channel 9. 2018. "Adams County Power Plant Closings Felt Across Community." May 25. https://www.wcpo.com/news/local-news/adams-county/adams-county-power-plant-closings-felt-across-community

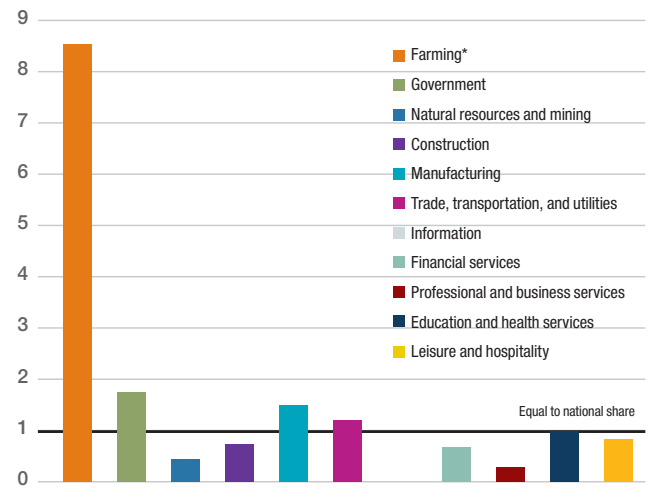
17 Location quotients compare the share of an industry in one region against that same industry's share in another region, usually the United States as a whole. A number greater than 1.0 indicates industry specialization.

A lack of infrastructure hinders development. Large sections of the county lack access to natural gas, a situation that is seen by many as a barrier to attracting new development and employers to the region. Even the large General Electric complex outside the village of Peebles relies on massive propane tanks for fuel. That may soon change; in August 2018, the county announced it had entered into an agreement with a company that would construct a natural gas pipeline across northern Adams County along the State Route 32 corridor.[18]

The county is hard hit by opioid abuse and lacks treatment facilities. A commonly used way to measure the impact of opioids on a region is to look at age-adjusted drug overdose deaths. By that measure, Ohio ranked second in the nation in 2016, and Adams County ranked eighth in the state during the period encompassing 2012 through 2017.[19] The county lacks any in-patient treatment facilities; this means individuals interested in treatment must be able to travel to surrounding counties.

The county's residents suffer from poor health outcomes. Since 2010, the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute have collaborated on the County Health Rankings & Roadmaps program, which tracks vital health measures for nearly every county in the United States. The program looks at a host of measures in an effort to present a more nuanced ranking of a county's level of health. Counties are ranked separately by health outcomes (how long people live and how well they feel) and health factors (behavioral and social factors that drive how long people live or how well they feel).[20] Of the 88 counties in Ohio, Adams ranks at or near the bottom in every year since 2010. High rates of smoking, obesity, and infant mortality are exacerbated by a declining yet still large percentage of uninsured residents. But, according to Leeann Puckett, "you have to have patience when you live in a county that has very little resources." Children's health fairs have been held in schools across the county, and the Adams County School District is now tobacco-free—an impressive feat, considering the county has the highest smoking rate in the state, yields the second largest tobacco crop in the state and, until recently, taught tobacco farming at its local vocational school.

Figure 2: Using Location Quotients to Understand Adams County's Employment Mix (2017)



* Farming employment is from 2016 and uses data from the Bureau of Economic Analysis. The Bureau of Labor Statistics does not track farming employment in its Quarterly Census of Employment and Wages (QCEW) dataset.

Table 2: Why Adams County's Population is Changing

	2000–2009	2010–2017
Births	**3,557**	**2,431**
Deaths	**2,779**	**2,411**
Natural increase *(births minus deaths)*	**778**	**20**
Migration *(domestic)*	**99**	**–841**

18 Beech, Patrick. 2018. "Utility Pipeline Coming to Northern Adams County." *The People's Defender*. August 10. https://www.peoplesdefender.com/2018/08/10/utility-pipeline-coming-to-northern-adams-county/

19 Ohio Department of Health. 2018. *2017 Ohio Drug Overdose Data: General Findings*. https://odh.ohio.gov/wps/wcm/connect/gov/5deb684e-4667-4836-862b-cb5e-b59acbd3/2017_OhioDrugOverdoseReport.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-5de-b684e-4667-4836-862b-cb5eb59acbd3-moxPbu6

20 University of Wisconsin Population Health Institute. 2019. *County Health Rankings State Report*. http://www.countyhealthrankings.org/rankings/data/OH

WHERE WE WENT

Greene County, Pennsylvania

At a rate of more than one per minute, massive trucks rumble across the narrow streets in downtown Waynesburg, the largest borough in Greene County, Pennsylvania. The 80,000-pound trucks carve deep ruts into the soft asphalt roads. The drone of engines accelerating and braking is incessant. These trucks offer a visual and auditory reminder of the oil and gas industry's presence. During the last 10 years, more than 1,500 natural gas wells have been drilled in the county, making it the fourth most active county in Pennsylvania when it comes to wells drilled.[21] Each of these wells requires miles of steel pipe, millions of gallons of water, and powerful compressors—all of it hauled by trucks.

Greene County is no stranger to natural resource extraction. In 2016, it was the second largest producer of coal in the United States.[22] Darlene Bigler, from Blueprints, a local nonprofit, points out that "the truth is, our industry is subsurface. If you're in town, there's a lot of truck traffic, but if you drive around you'll think it's a quiet, sleepy kind of community. Above the ground it's very quiet, but the craziness underground sustains it." This underground activity, particularly with the oil and gas industry, creates a predicament for community leaders: Jobs are plentiful and opportunities abound, but the county's infrastructure is stretched to its limits, its tax base has been declining since the mid-1990s, and the specters of boom-and-bust cycles past are ever-present.

WHOM WE SPOKE WITH

- **Darlene Bigler**, *CEO, Blueprints*
- **Mike Kriner**, *President and Owner, Next Generation Partners, Inc.*
- **Mark Krupa**, *Administrative Director, Greene County Career and Technology Center*
- **Robbie Matesic**, *Executive Director, Greene County Department of Economic Development*
- **Petra Mitchell**, *President and CEO, Catalyst Connection*
- **Nate Regotti**, *Chief of Staff, Representative Pam Snyder*
- **Pam Snyder**, *Representative, Pennsylvania House of Representatives (50th District)*
- **Jim Stark**, *CEO, Fayette County Community Action Agency*

WHAT WE LEARNED

Natural resource extraction remains a huge driver of the local economy. In 2017, the natural resource and mining sector accounted for 20 percent of the county's employment and 35 percent of its total wages. Figure 3 uses location quotients to show the natural resources and mining sector was 15 times greater than the national average in 2017.[23] According to Darlene Bigler, there is a "cultural reliance on coal mining jobs" and a "reluctance of people to recognize that those opportunities are limited and that there's a need to move on."

The need to diversify is recognized but not prioritized. Several interviewees mentioned the importance of diversifying the economy; however, the steps needed to diversify are unclear. The healthcare and social assistance sector could be worth focusing on since employment in that sector is experiencing strong growth in nearby counties. To the north in Washington County, healthcare and social assistance employment grew by 40 percent (280 jobs per year) from 2001 to 2017, while in Monongalia County, West Virginia, to the south, employment in the sector grew by 50 percent (247 jobs per year). The county's strong "coal culture" has taken a hit as coal production and employment in the county has declined by 33 percent and 23 percent, respectively, from 2002 to 2016. However, at the same time, natural gas drilling and production is booming. From 1900 to 2011, just more than three wells per year were drilled in the county, but from 2012 to 2017, that number had jumped to more than 100 per year. Referring to this expansion, Representative Pam Snyder notes that "Greene County's economy is heavily reliant on the energy industry. Coal mining is still occurring and the natural gas industry continues to boom. Good quality jobs are available, more now than in the past." As long

21 Data pulled here from the Pennsylvania Department of Environmental Protection Oil and Gas reports: http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/Wells_Drilled_By_County

22 US Energy Information Administration. 2016. *Annual Coal Report*. https://www.eia.gov/coal/annual/

23 Location quotients compare the share of an industry in one region against that same industry's share in another region, usually the United States as a whole. A number greater than 1.0 indicates industry specialization.

as the natural resource extraction economy continues to boom, there is less pressure or incentive to diversify the mix of jobs to temper future employment changes.

A shrinking population results in a shrinking tax base, and municipal budgets are strained. Even though the county's total employment increased 9 percent from 2001 to 2017, its population decreased by nearly 9 percent during the same time. The population has been declining for 20 of the past 21 years; in 2017, the population of Greene County was 36,770. This population loss is driven by a combination of deaths outnumbering births and accelerating out-migration (see table 3). Fewer residents means fewer tax payers, a situation that results in less tax revenue to pay for municipal services.

The weakening coal economy strains school district budgets. In Greene County, school districts rely heavily on mineral property taxes paid by coal mining companies on the value of the coal under their land. As mines shut down, there could be a resultant dramatic decline in revenue for school districts.[24] For example, the Central Greene School District saw the assessed underground mineral value fall 55 percent between 2014 and 2018; that meant a revenue reduction of $2.3 million.[25] In response, teachers are laid off, rainy day funds are depleted, and class sizes increase. This tax assessment is unique to coal and does not apply to natural gas, which is taxed via an "impact fee." The impact fee is paid over a period of 15 years and is calculated based on the sale price for natural gas and the well's age. The money is distributed annually to communities and state agencies.

Community leaders are trying to figure out how best to make use of the county's prime location and natural beauty. "We're looking at growing the population," stated Mark Krupa, administrative director at the Greene County Career and Technology Center; "we need to [make the most of] the beauty of this area and pair it with being a bedroom community." Greene County is well-positioned along the I-79 corridor, with Morgantown, West Virginia, 26 miles to the south and Pittsburgh 52 miles to the north. According to the 5-year American Community Survey Commuting Flows from 2009–2013, most Greene County residents work in the county (62 percent), but an increasing share are working north in Washington County, Pennsylvania, and south in Monongalia County, West Virginia.

However, infrastructure needs can be a barrier to development. "If you get three miles outside of the town [west of Waynesburg], you lose cellphone coverage…who would want to build a $200K to $300K home when they don't have cellphone coverage there?" asks Mike Kriner of Next Generation Partners, Inc. Interviewees noted demand for market-rate housing, but water and sewer connections are needed to attract new housing development. And even when one overcomes the obstacle of obtaining basic utilities, reliable broadband connections and cellphone coverage are needed to attract residents. A look at the data shows that the total number of housing units in the county has remained relatively unchanged since 2000, hovering around 16,500. From 1988 to 2004, before cellphone coverage was a major consideration, the county averaged 10 new units per year, but from 2005 to 2017, after cellphone coverage was a major consideration, the average dropped to less than one unit per year.

Broadband access is viewed as key infrastructure for economic development. Access to broadband is a critical item that can change people's lives. According to 2013–2017 American Community Survey data, 23 percent of the county's households lack internet access; for comparison, the national average is 18 percent. Robbie Matesic, the executive director at Greene County's Department of Economic Development, when asked if there was anything else she would like to tell us, replies, "Did we mention broadband, broadband, broadband? It is needed for our farmers' agricultural technology as well as our energy sector." It can enable residents to work from home, expand learning opportunities for students, and facilitate the use of new services such as telemedicine. Telemedicine gives health professionals the ability to evaluate, diagnose, and treat some patients remotely, a valuable option in rural areas where hospitals may not be easily accessible.

24 Betcher, Meghan et al. 2012. *The Impact of Coal on the Pennsylvania State Budget.* October 3. http://www.downstreamstrategies.com/documents/reports_publication/ds_penncoal_budget_final.pdf

25 Mamula, Kris, and Jessie Wardarski. 2018. "In Greene County, School Budgets are being Hollowed Out by Dwindling Coal Reserves." *Pittsburgh Post-Gazette*. September 4. https://newsinteractive.post-gazette.com/blog/declining-coal-reserves-siphon-tax-money-from-greene-county-school-districts/

Figure 3: Using Location Quotients to Understand Greene County's Employment Mix (2017)

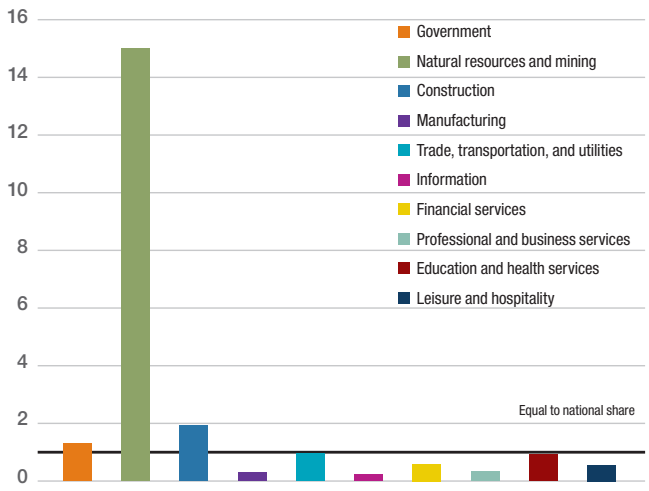


Table 3: Why Greene County's Population is Changing

	2000–2009	2010–2017
Births	**3,812**	**2,766**
Deaths	**4,031**	**3,138**
Natural increase *(births minus deaths)*	**–219**	**–372**
Migration *(domestic)*	**–953**	**–1,451**

The bottom line

We chose to visit these three counties because they have two things in common: rural location and demonstrated long-term economic need. These counties have more in common than that, however. After traveling to each county, speaking with key stakeholders, and seeing the landscape firsthand, we found that all three counties had common challenges, too.

Connectivity—both virtual and physical—is critical.

- **Virtual connectivity:** We learned that improved broadband infrastructure can lead to job creation. This is particularly evident in Owsley County, Kentucky, where a high-speed fiber-optic network has allowed county residents to work remotely for companies across the country. Since its installation, broadband has played a part in the creation of more than 200 jobs in the county. Broadband access is critical not only for workforce development, but also for education, housing, healthcare, small-business development, and access to financial services. A recent publication from the Appalachian Regional Commission cited infrastructure investment, including broadband, as a best practice for strengthening economic resilience in Appalachia.[26] The Federal Reserve System has been examining this issue and how banks' Community Reinvestment Act (CRA) obligations could spur investment in broadband.[27]
- **Physical connectivity:** Interviewees in each of the counties cited the lack of public transportation options as an obstacle. In many rural counties, residents lack alternatives to owning their own vehicles, a situation that can limit access to social services, medical care, and jobs. Potential solutions include a traditional public transportation model using fixed-route bus service, ridesharing (vehicle sharing between organizations or carpooling), or volunteer programs in which drivers may be reimbursed for costs.[28]

26 Boettner, Fritz et al. 2019. *Strengthening Economic Resilience in Appalachia*. Appalachian Regional Commission. https://www.arc.gov/assets/research_reports/StrengtheningEconomicResilienceGuidebook-Feb2019.pdf

27 Barton, Jordana. 2016. *Closing the Digital Divide: A Framework for Meeting CRA Obligations*. Federal Reserve Bank of Dallas. December. https://www.dallasfed.org/cd/pubs/digitaldivide.aspx

28 Bayne, Alycia et al. 2018. *Promising Practices for Increasing Access to Transportation in Rural Communities*. The Walsh Center for Rural Health Analysis, National Opinion Research Center at the University of Chicago. April. http://www.norc.org/PDFs/Walsh%20Center/Rural%20Evaluation%20Briefs/Rural%20Evaluation%20Brief_April2018.pdf

Developing a deep leadership bench can be difficult. This is largely because of a lack of succession planning and processes for retaining institutional knowledge when community leaders retire. However, the small size of rural communities can work against the communities, too. On one hand, in rural communities with such small populations, a handful of key stakeholders can make a significant difference; on the other, it can be difficult to cultivate a leadership pipeline with such few residents. Adams County has solved this challenge with its program Leadership Adams.[29] Each year, a group of civic-minded individuals prepares for future leadership opportunities in the county through shared activities, projects, and networking. Within the Federal Reserve System, the Kansas City Fed has produced a nonprofit executive succession-planning toolkit to help walk organizations through this essential process.[30]

While these counties share common struggles, even within this group, each county also has unique challenges to overcome. In Owsley County, these challenges are a declining population and lack of employment opportunities. For Adams County, it's the loss of industry and revenue. And in Greene County, the challenges are overcoming their dependence on natural resource extraction and maintaining their infrastructure.

Solving problems that those in rural communities face is not easy; residents of rural counties experience challenges unique to their locations and population sizes. But with necessity comes invention, and the three counties highlighted here are finding success in addressing their most pressing needs. It is our hope that, in sharing the snapshots of these communities—their stories, their struggles, their successes—those facing similar challenges may find similar solutions, too.

29 Leadership Adams. Website. http://www.leadershipadams.org/Home_Page.html

30 The Federal Reserve Bank of Kansas City. *Nonprofit Executive Succession-Planning Toolkit*. https://www.kansascityfed.org/community/nonprofit-management-resources/nonprofit-succession-toolkit

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